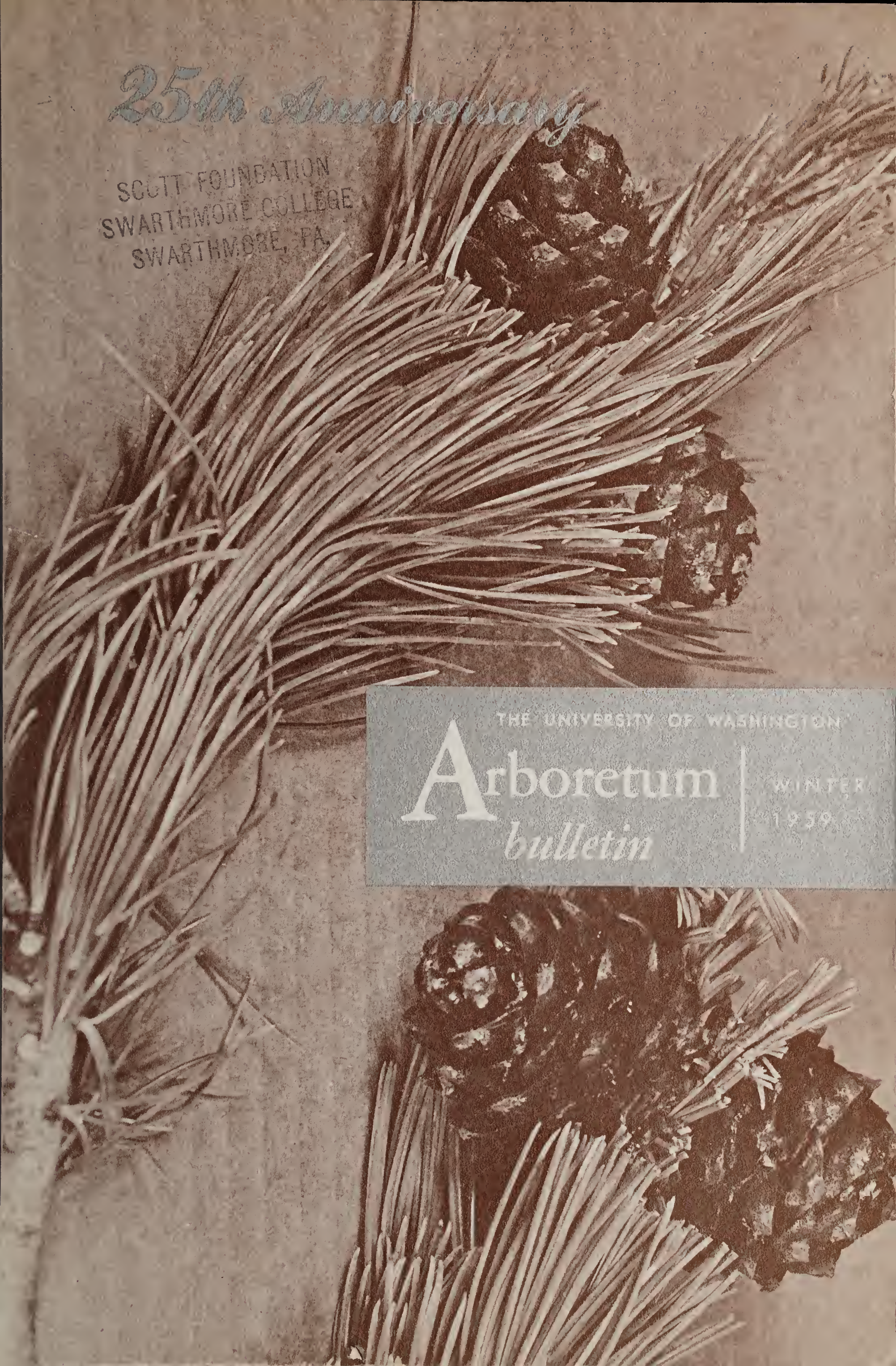

25th Anniversary

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Arboretum bulletin

WINTER
1939

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COVER—

Cones of the Whitebark Pine—*Pinus albicaulis*

PHOTO BY E. F. MARTEN

Our 25th Anniversary

On December 6, 1934 an "Agreement Relating to Arboretum and Botanical Garden in Washington Park" was signed by Mr. Harry Westfall, President of the Board of Park Commissioners of the City of Seattle, and Mr. Edward P. Ryan, President of the Board of Regents of the University of Washington.

Thus was officially set in motion the chain reaction which has brought us to our present condition, admittedly imperfect but we believe steadily improving year by year, and to a status where our place in the national and world-wide network of arboreta and botanical gardens is well established and recognized.

This issue of the "Bulletin" therefore differs considerably from the norm. In it we endeavor to show you, our readers, some of the problems which beset our childhood and youth; then, through several pairs of eyes, what kind of an adult we have become and how we are trying to adequately play a small part in the daily life of the city and its environs.

In the accomplishment of this living, growing, slowly changing assemblage of plants from all the world, cooperation between city and university authorities on the one hand, and private groups and individuals on the other, has been most fruitful. May it ever remain so.

Early Days of the Arboretum

H. G. Ihrig*

The following letter from Mr. Ihrig to the Editor, who requested this contribution, indicates his difficulties in fully carrying out the assignment. While we realize the problems involved we nevertheless feel that he has given a very fair picture of the chain of events which led to the establishment of this arboretum, and warmly appreciate his efforts in gathering and sorting these facts.

"Thanks for the additional names of those whose efforts contributed to the development of the Arboretum but let me add that this emphasizes the most difficult problem I have faced in assembling my data.

"Everyone interviewed cooperated fully and offered names and suggestions. To include all of them was obviously impossible. There was also the matter of different versions of some events. The question was, whom and what to include? Since I have neither the information nor the insight to evaluate all of these services I was in the position of a judge trying to make a decision without hearing all of the evidence. To mention only those with whom I was closely associated would be unfair to many others. Just where could I draw the line? How detailed should I be?

"I pondered these questions many hours and decided that if I were to hold my presentation to a readable size and yet be fair and factual, I would have to strip it of many personalities and events. This also seems unfair since I can think of so many who labored long and faithfully.

"To properly cover the early days it is my considered opinion that if you use this paper it should be followed by others with different viewpoints on the various phases of the work. Mrs. A. Krauss, Mr. Donald Graham, Mr. Perry Truax are some who could contribute much. And certainly someone should pay a proper tribute to the diligent work and unwavering faith of Dean Winkenwerder."

PERHAPS the main problem involved in the early days of the Arboretum was the creation of a reality from a dream. Those of us who participated in its final consummation were not the first to feel the thrill of this

*Mr. Ihrig has been an ardent promoter and staunch supporter of the Arboretum for more than a quarter of a century, and certainly well qualified to write of its early years.

dream. Mr. Howard Parish, then publisher of the *Seattle Star,* envisioned an Arboretum at Fort Lawton; the Seattle Park Board during the presidency of O. J. C. Dutton in 1924 passed a resolution designating all of Washington Park for arboretum purposes; an Arboretum Society was subsequently incorporated (1930) by a group of prominent civic and cultural leaders. Many others contributed to the development of this idea whose only reward was the consciousness of fostering a great ideal. However, many problems, chiefly financial, nullified their efforts and the vision waned until the midst of the depression.

It is difficult to attribute to any person or group the motivation of the next step that led to eventual success. It was the combined effort of a great number of people who contributed of their time and talent. To name all of these would increase this issue of the *Bulletin* many times its present size, so this summary can mention only a few of those who worked together, but no one appreciates more than the writer the credit due so many who cannot be enumerated.

In 1933 the PWA did some rough clearing in the Washington Park area but it was not until the State of Washington decided to help in the unemployment situation that real progress began.

Perhaps the spark that triggered this development more than any other one thing was a suggestion by Mrs. Loren Grinstead Sr. to Mr. Grinstead, who was advising Governor Martin on the possible use of state funds to ease the unemployment situation. Their big problem was how and where to spend the money. It was at this juncture that Mrs. Grinstead posed a very pertinent question: "Why not the Arboretum?" The answer solved many other problems, as the project was easy of access for the Seattle area and most of the work required no special skill. However, the Park Board which controlled the area, was not prepared to undertake a development that required scientific control and management, yet without such direction an Arboretum would remain a nebulous thing without form or continuity.

A group of horticultural enthusiasts was called to an evening meeting at the Broadmoor Golf Club by Mrs. Grinstead. Mr. Grinstead, Dean Winkenwerder and others outlined the problems confronting us and the necessity of creating a permanent legal organizational structure.

Out of this meeting an informal committee was formed and charged with promoting these ideas and creating a legal entity with the University of Washington as operating head. The legal end was handled by Mr. O. B. Thorgrimson, who after a study of the contract between Harvard University and the City of Boston drew up an agreement between the City of Seattle, represented by the Park Board, and the Regents of the University. An ordinance was passed by the City Council November 30, 1934 authorizing the Park Board to enter upon this agreement, which was dated December 6, 1934 and subsequently signed by both parties. The principal clauses of the contract gave the University a perpetual lease on the area for Arboretum and botanical purposes and provided that the Park Board construct and maintain roads, walks, driveways, water and lighting system, provide police protection, etc. It also called for an advisory committee of seven members: three to be appointed by the Mayor, three by the University and one by the Governor. This committee was subsequently increased to fourteen members, and took over the duties of the unofficial committee that had been operating. Meantime under the WERA (Washington Emergency Relief Administration) $88,232.95 was spent in wages and salaries during 1934. This was mostly in general clearing and work in the north end lagoon area.

Dean Winkenwerder became first Director of the Arboretum from 1934 to 1938, and was followed by Dr. J. H. Hanley, 1939-January 1947.

During this time efforts were being made to bring the Federal Government into the picture but this called for financial contributions by the sponsors and neither the City

nor the University had funds available for this purpose.

Methods of meeting this financial situation were urgent. One such method was the organization of the Arboretum Foundation. The first Board of Directors was chosen June 27, 1935 and officers elected subsequently were headed by Mr. W. T. Douglas as president, with Mrs. L. C. Henry as first vice-president, Mrs. Grinstead, treasurer. The purpose of this organization was not to assume responsibility for the continued maintenance of the Arboretum, despite the fact that the first Federal application for funds lists the Foundation as the guarantor of maintenance. However, the Foundation did furnish funds for the Director's salary from January 1, 1939 to January 1, 1947 as well as funds for many other purposes both before and after legislative appropriations were made. Without this continued support the development of the Arboretum would have been delayed many years. The basic purpose of the Foundation was to assist in the establishment of the Arboretum; to serve as a repository for special funds, gifts and endowments; to do promotional work; to seek acquisitions of special plant collections, and to widely publicize the ideal climatic conditions for this development.

Another obstacle in securing State and Federal funds was the lack of an overall development plan. This was met by a gift of $3000 to the Regents in 1935 from the Seattle Garden Club for the employment of Olmsted Bros. of Brookline, Massachusetts for this purpose.

In December 1935 WPA project No. 820 was authorized and $296,290 was spent up to July 1936. In October of that year five new projects were authorized, known as A, B, C, D and E. They were so divided as at that time there was a limit to the amount that could be expended on an individual project. The sum of $327,272 was put into this work during 1936 and early 1937. On July 9, 1937 these projects were consolidated and an additional authorization of $371,115 was made for an eight months' period, subsequently revised to continue until June 30, 1938.

The details of these expenditures reveal a multitude of problems that had to be met but these are matters for the researcher. To the layman the area as it now stands with its water and lighting systems, buildings, nursery, roads, trails, fences and various other improvements is the result of painstaking efforts and cooperation by many in the solution of the involved details.

Meantime the acquisition of plant material began in which the Seattle Garden Club played a valuable part in securing the Tenny rhododendron collection—the first major plant gift. These plants were probably the first Asiatic species to be grown from seed in this area, sent to Dr. Tenny by Mr. F. R. S. Balfour of Scotland.

The Acquisition Committee was also active in enlisting help from other garden clubs and individuals, such as Woodland Garden, sponsored by the West Seattle Garden Club, the Mary E. Williams Memorial Camellia Garden, by the Amateur Gardeners, plants donated of many series of rhododendrons, and other gifts. One of the most notable was the collection of rhododendron species and hybrids received from Mr. C. O. Dexter of Cape Cod, Massachusetts, in the spring of 1938 and summer 1939. The latter included some fifty numbers of his *R. Fortunei* hybrids, many of which have now grown into large plants in Rhododendron Glen. In December 1937 the first plantings of pines, cypresses, spruces, firs, etc., were made in the Pinetum, and of *Cornus florida* and *Azalea Schlippenbachii* on Azalea Way.

It was not until 1943 that the State Legislature made the first appropriation for Arboretum purposes, amounting to $41,700. Again in 1945 $75,930 and in 1947 $50,000 was appropriated.

By this time the educational and scientific value of the undertaking was established but only time and continued effort will bring about the fruition of our dream. The cooperation of the Arboretum Foundation and its many friends with the University staff over

(Continued on Page 133)

Growth and Development of the Arboretum Since 1943

B. O. Mulligan

At the time of the first appropriation of funds for the Arboretum by the State Legislature in April 1943 the staff consisted of the Director, Dr. J. H. Hanley, with seven men and one woman full time employees, plus five men and another woman part time at week-ends. Dr. Hanley was also Editor of the Arboretum Bulletin, published quarterly from March 1943. Mr. Paul Brown was appointed Superintendent in May 1943, Mr. Earl A. Brown as maintenance foreman four months later. The large lath house south of the greenhouse was then under construction and was completed in the fall; it was not until 1958-59 that reconstruction of it became necessary.

Early in 1944 the Tenny collection of rhododendrons, which had been planted on the south bank of Rhododendron Glen in the spring of 1939, was re-arranged by Mr. Otto Holmdahl, much to the benefit of the individual plants. Unfortunately the abnormally early and very severe freeze of November 1955 killed a large number of these plants, especially *R. rubiginosum, R. cinnabarinum* and many of the *Triflorum* series, although some of the fine specimens of *R. Augustinii* and *R. lutescens* survived.

About 1,000 new plants were put in at that date along the bank to the west, almost up to the look-out, and 2,500 azaleas along Azalea Way.

In April 1945 the first camellia show was held in the Arboretum greenhouse and at the same time the Mary E. Williams memorial camellia garden was dedicated, sponsored by the Amateur Gardeners and designed by Mr. Holmdahl. The interest of this group in the garden has been steadily maintained through the intervening years, and despite losses from cold in November 1955 it is one of the most attractive corners of the Arboretum throughout the year. Recent additions have enhanced its variety of plant materials, of other kinds as well as camellias.

In the year ending May 31, 1945, 6,837 plants were received, of which trees and shrubs formed the majority. 800 packets of seeds also arrived, of which almost one-half came from the Royal Botanic Gardens, Kew, London; 100 of the remainder were rhododendrons, from the Royal Botanic Garden, Edinburgh, Scotland.

During the same twelve months 7,400 plants were set out in permanent places, almost equal to the number (7,500) planted during the previous year. Azaleas and rhododendrons accounted for nearly one-third of the total in 1944-45.

The Arboretum Foundation membership increased by more than 72% in the same year, to a total of 2,161, chiefly through an intensive campaign and contest among the local garden clubs.

With additional funds (approximately $36,000) available for the 1945-47 biennium a new truck, tractor, mowers and a cultivator were acquired and greatly aided the small crew in coping with a large amount of maintenance work. Some 5,000 plants were set out in the 1945-46 planting season and all the cultivated beds mulched with leaves, of which a good proportion came from the city Engineering Department. Plant acquisitions numbered 1,722, seed packets 860, of which about 60% came from overseas sources, including the U.S.S.R., South Africa and the Netherlands. At the beginning of May 1946 the first rhododendron show was set up in a tent in the parking area at the head of Rhododendron Glen; some 3,000 people attended in two days.

The Handbook of Rhododendrons, suggested by Mr. Ihrig and compiled by a committee under the leadership of Dr. Hanley, was published this spring by the Arboretum

Foundation. Because of the quality and authority of the material presented the book was a notable success and certainly increased the status and reputation of the Foundation as well as of the editor and authors.

The steadily rising amount of public service work was becoming noticeable by this time, in the several forms of answering inquiries by phone and mail, in talks to groups of various kinds as well as tours in spring and early summer. This, however, is only to be expected in any such institution, and increases as its existence and functions become more widely known. Eight years later, in 1954, telephone inquiries were averaging 100 a month; in 1959 it has risen to about 125 monthly.

Early in 1947 changes occurred in the administrative staff. Dr. John H. Hanley resigned as Director, after eight years unremitting service, and was succeeded by the present writer who had arrived from England the previous October. Mr. Paul Brown, previously Superintendent, also resigned at the same time, and Mr. R. J. Hansen was appointed to fill the vacancy. His training as a landscape architect at the University of Wisconsin proved most valuable at this stage, and during the succeeding six and one half years he was responsible for designing the new camellia garden (spring 1949), the area around the present offices (spring 1952), and for fresh planting in Woodland Garden, as well as making maps of other existing groups and areas.

The outside staff at this time comprised a foreman and nine men in the Arboretum with a foreman and one other man responsible for the nursery, greenhouses and lath houses. Two part-time men were also employed at weekends.

The Spring 1947 issue of the *Arboretum Bulletin* (Vol. X, No. 1) was notable for its first appearance in a two-color glazed paper cover, and under the editorship of Mr. Milo Ryan, who was also executive secretary for the Foundation, fully maintained the previous variety and high standard of its contents. The first of a long series of articles on other arboreta and botanical gardens was also published, on the University of California Botanical Garden at Berkeley.

Amongst portions cleared in the winter of 1946-47 were the lower slopes of Rhododendron Glen, the area west of it between Azalea Way and the Boulevard, the junction of the latter with Boyer Avenue, the Madison Street entrance where the trees in the approach avenue were pruned higher, immediately north of the East Lynn Street footbridge, and finally the section between Roanoke Street and the present Historical Society's museum, below the level of the Boulevard and adjacent to Union Bay. The last was certainly the most effective in the results obtained in a few weeks, and trees and shrubs planted in it subsequently (spring 1947) have thrived with a minimum amount of maintenance.

A considerable amount of new planting was made that spring, in many locations throughout the Arboretum. Some of them were the camellias, manzanitas, strawberry trees *(Arbutus Unedo)* and silverbell trees *(Halesia carolina)* across the road from the head of Rhododendron Glen; camellias and rhododendrons on the bank north of the East Lynn Street footbridge (most of the former were killed by cold in November 1955); two beds of more than 100 Asiatic quinces *(Chaenomeles)* at the entrance to the Winkenwerder memorial area beside the Boulevard at Miller Street; 26 additional young Japanese maple trees to the collection west of the Boulevard south of Interlaken; three large beds of Glenn Dale azaleas, totaling nearly 700 plants of 18 varieties, on the east side of Azalea Way in its northern half; the double-flowered peaches and *Prunus Blireiana* by the Madison Street entrance; groups of Japanese larches at the south end of Azalea Way, and initial collections of firs *(Abies)*, spruces, tree peonies, *Cistus* and *Halimium* on either side of the Upper Road. The borders around the office and greenhouses were also improved and planted with some interesting or unusual materials, including *Ceanothus, Gerbera* and

Fremontia californica.

The second Rhododendron Show sponsored by the Arboretum Foundation was held in early May in a tent on the Madison Street playfield; group exhibits were displayed as well as cut sprays and flower trusses. About 7,000 people attended.

Additional equipment acquired about this time were two power-driven cultivators, one of 18 inches, the other 14 inches in width, the latter especially for cultivating between plants such as azaleas in beds; also a surplus 36-inch chain saw from the College of Forestry. This last did yeoman service every winter until 1959 when it was finally replaced by an up-to-date smaller type donated by the Arboretum Unit Council.

In September, 1947, grass walks were sown in the *Cistus* section; later in the fall two areas were ploughed, one immediately south of the latter up to Rhododendron Glen, to contain members of the large pea family *(Leguminosae);* the other of 3 to 4 acres just north of the Boulevard between Miller and Roanoke Streets, a much tougher proposition since it had been formed from an old city dump. This was the start of the Winkenwerder Memorial area, allocated to the great rose family *(Rosaceae)* but of which the future now seems most doubtful, to say the least, considering the advent of Empire Way which probably will pass through its center.

Between October and Christmas planting continued vigorously in many quarters. On Foster's Island twenty species of pines, seventeen of birches and nine of alders, a total of 181 plants, were placed in groups according to their botanical relationships. Fourteen species of *Ceanothus* formed a new collection on the east side of Azalea Way; despite losses and replacements due to cold winters this genus is still represented there.

Thirty species (125 plants) of shrubby honeysuckles *(Lonicera)* were set out, usually in groups of three of a kind, around the small hill west of Azalea Way below Loderi Valley which had been cleared for this purpose. Fifteen plants of peonies, six species of sumacs, four kinds of *Eucryphia* and a collection of lilies near the head of Rhododendron Glen were other additions.

Four divisions of the nursery were completely cleared during the summer, plowed and frequently cultivated; one was replanted in September with 2,400 young rhododendrons, another later with various trees and shrubs. Plans were being drawn for the Garrett memorial planting to the north of Rhododendron Glen and for improvements along Azalea Way and in Woodland Garden.

Late in 1947 arrangements were made with Dean F. Powers, of the College of Education, to avail ourselves of the services of the University's Still Photography Unit, in order to make a photographic record of the Arboretum and its plants as it developed. Under the supervision of Mr. E. F. Marten this has proved of great value; many of the pictures taken have been published in the ARBORETUM BULLETIN, in *Sunset* magazine and various horticultural books and journals, and the whole collection now forms an essential part of Arboretum history. In the spring of 1948 the plan was extended to include color photography, so that slides would be available for lectures to groups. This collection now comprises more than 2,000 slides and covers all seasons of the year in the Arboretum.

The death of Dean Hugo A. Winkenwerder, first director of the Arboretum, 1934-38, Works Agency, December 1947.

In March, 1948, the office of the Arboretum Foundation was moved from downtown Seattle to the Arboretum, where it is still located. This was made possible by the erection of a service building, 50x25 feet, immediately north of the office block, containing a machine shop, lunch room for the crew and public rest rooms. This was obtained from the Federal Works Agency, December 1947.

A list of seeds available for exchange was compiled and sent in January to 175 cooperating institutions or individuals.

In the spring of 1948 both new planting and preparations for further planting were taking place.

In the Pinetum by East Lynn Street young plants of cypresses, junipers and, for more winter color, spindleberries *(Euonymus)* were set out. All rhododendrons belonging to the *Thomsonii* series were gathered together on the bank north of the Glen where they are now established. Below them was the now completed Garrett memorial, containing groups of *Rhododendron* 'Loder's White', *R. mucronatum,* and on the southwest corner *Enkianthus* for fall color; to the north of this a new bed was ready to receive examples of *Pieris, Kalmia, Leucothoe, Vaccinium* and allied members of the *Ericaceae* family which were planted in March, together with three specimens of the handsome *Magnolia Soulangiana* 'Brozzoni.' *Pernettya, Gaultheria* and heathers were destined for another site beside the Upper Road close to the Glen.

The first plants of a collection of shrubby dogwoods *(Cornus* species) were placed between the Boulevard and Azalea Way, near Boyer Avenue, and a dozen plants of the yellow flowered *Paeonia lutea* in the peony section, the gift of Mrs. O. B. Thorgrimson, where they or their progeny flower annually in mid-May. The majority of all these plants had been raised from seeds in the Arboretum and many, such as the maples, quinces and honeysuckles, had been six or seven years in the nursery.

A welcome addition to our equipment was a 200-gallon spray tank with pump, donated by the Arboretum Foundation and still giving excellent service when needed.

Seeds of the famous 'Dawn Redwood' of western China *(Metasequoia)* were received from the late Dr. E. D. Merrill of Arnold Arboretum, Harvard University, in January, 1948. The largest of the resulting plants, although all were severely set back by cold weather in November, 1955, has now attained 19 feet in height; others are from 11 to 14 feet.

A collection of 16 packets of rhododendron seeds from Mt. Omei in western China through the same source is also worthy of record, since it produced the remarkable *R. Hemsleyanum* of series *Fortunei,* as well as several other species not previously in cultivation here, and was one of the last consignments received from China.

During the spring of 1948 more than 1,600 azaleas, chiefly Glenn Dale hybrids, were transplanted to the northern half of Azalea Way; 300 dwarf rhododendrons of the *Lapponicum* series and 125 of the medium-sized *Triflorum* types were moved to the south bank of Rhododendron Glen.

Seventy-five more Japanese maples were transferred from the nursery to the main collection in the southwest part of the Arboretum, and thirty others to Woodland Garden, where most have flourished in the succeeding years. Thirty-two plants of magnolias went into the collection, of which ten were seedlings of *M. Kobus;* these have only begun to flower in the past two years and vary considerably in quality of blooms.

A third bed of Asiatic quinces was planted in April beside the two older groups; this one contained 23 plants of 18 varieties, as well as three specimen trees of *Malus* 'Robusta,' one of the most showy of all its race, both in spring and fall. Some examples of the family *Leguminosae*—locusts *(Robinia),* yellow-wood *(Cladrastis), Maackia* and Kentucky coffee tree *(Gymnocladus)* were placed in their allotted section to the east of the Upper Road.

A weekly, 15-minute radio program on KOMO, "Your Arboretum," was started in January, 1948, and continued into the summer. The director and Mr. Milo Ryan discussed some plant group or subject of current interest. In the following winter and subsequent spring it was transferred to KING, Mr. Grant Merrill taking the place of Mr. Ryan.

A notable gift received this spring was the large collection of 41 kinds of holly plants acquired from a Maryland nursery, donated by the Washington State Conservation Society. Of all these only four failed to survive; the rest are now flourishing and many bear fruit annually in our holly grove, where they

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The Value of the Arboretum to Seattle

PHILIP W. BAILEY*

FOR REASONS yet unknown to sociologists, today's generation of men increasingly tends to congregate in great numbers in metropolitan cities. Here they live and work, crowded together both at home and office. Houses are built as close to one another as possible, multi-storied offices confine thousands in walls of stone and mortar. Men drive to work on hard ribbons of concrete, with cars bumper to bumper, and work endlessly with machines, both large and small.

This urge of man to live in close proximity to other thousands, hundreds of thousands and millions, grows ever stronger as the world of trade and commerce displaces the agricultural age. Cities become more congested each year, with remaining open spaces fast disappearing before the combined onslaught of the housing developer, the apartment builders and the highway planners.

Yet this new urban world is foreign to the basic nature of man. Most of our forbears were men of the fields, farmers and frontiersmen, planters and huntsmen. All of us have an inbred feeling for contact with the soil and the plants it produces. As the constraints of modern living conditions become irksome, or at times nearly unbearable, we need to refresh our minds and bodies by returning to the quiet solitude that the open spaces afford.

This then is the main value of the Arboretum to Seattle. Here within a few blocks of the city center and centrally located for nearly all our citizens, is a magnificent area of field and woods, of quiet glades and solitary paths that we can reach within a few minutes time. When the clatter and closeness of the city becomes too strong, when the mind rebels against the hardness of concrete and steel, a ready antidote is available—a medicine that heals and soothes the jangled nerve quickly and more effectively than those dispensed by the pharmacist. The Arboretum is always waiting and available and its ever-changing beauty makes it both a haven and an inspiration during all the seasons.

It is, of course, not necessary to feel confined to enjoy the Arboretum. On a dazzling spring morning when the flowering trees are in full bloom, just driving through it is a rewarding experience. The winding road, flanked by a wide variety of trees, is a pleasant change from treeless streets, and many Seattleites who have never bothered to stop and explore the Arboretum on foot have felt its great value to the city when viewing it from their automobiles.

The Arboretum has many other qualities that add to the pleasure and enjoyment of Seattleites. It is a wonderful place to roam with the children, who perhaps enjoy the open spaces even more than adults. Although the small fry may not appreciate the variety of the plantings, they will absorb, perhaps in spite of themselves, a feeling for the beauty of flower and tree.

For both adult and child, the ever-changing face of the Arboretum is one of its most delightful aspects. Planting has been carefully arranged to give color throughout the year. Camellias, rhododendrons, azaleas, magnolias, crabapples, Japanese maples, mountain ashes and an infinite variety of other trees produce a varied kaleidoscope month after month. Flowers and trees have been combined to add pleasing contrasts—hollies and daffodils for example live together to brighten both the Christmas and Easter seasons.

Another facet of the Arboretum that is often overlooked is its program of introducing new and different plants into the Northwest. From all over the world come new varieties of plants, shrubs and trees. From Japan, England, Italy, India, Australia and New Zealand the Arboretum receives a constant flow of seeds, scions and cuttings, which

(Continued on Page 136)

*Member of the Arboretum Foundation Board of Directors and Editor and Publisher of *The Argus*, Seattle.

What Goes On at the Arboretum?

DOROTHY METHENY*

THE MEMBERS of the University of Washington Arboretum Foundation help to maintain one of the show spots of which Seattle, the State of Washington and the Pacific Northwest can be most proud.

Do you know that if you join them you will, at the same time, be putting yourself in touch with a source of information, interest and inspiration?

The Arboretum's 1958-59 programs included some services of long standing and also a number of innovations which have drawn so much enthusiastic response as to warrant the prediction that they will continue to be offered in the future.

1) The Arboretum office and its knowledgeable staff are always as close as your telephone. In 1958 they responded to 1802 inquiries, of which 681 were in April and May. The highest previous yearly total, 1313, occurred in 1956 when so many of us were wondering what to expect of our hard-hit shrubs suffering from the freeze of the previous November.

2) You and your friends may obtain a map at the Arboretum office. One in black and white is given free to new members, or a larger, colored, more detailed map can be purchased for a small charge. Stroll at your leisure through the Arboretum, spotting the well marked collections as you go. A splendid way to start is with the mimeographed self-guiding tour of Native Trees and Shrubs, with numbered map and interesting short paragraphs on twenty-three of the beautiful species which we so fortunately have in abundance around us. This will be only a beginning as the Arboretum's collection includes many of the desirable native Northwest plants. See them all when you can get around to them.

3) If you have an interested group of not less than fifteen persons (and preferably not over thirty), arrangements can be made for a special guided tour, led by a member of the Arboretum staff. Seventeen groups availed themselves of this opportunity in 1957, 31 groups in 1958, 23 in 1959.

4) If you belong to a garden-minded study group, the Arboretum staff will be happy, on occasion, to make your meetings more enjoyable and more educational by furnishing you with plant material to be examined at first hand. The number of groups receiving such cooperation in 1957 was 54, in 1958 30, in 1959 62 (through October).

5) The Director of the Arboretum, Mr. Brian O. Mulligan, and the Assistant Director, Mr. Joseph A. Witt, are frequently called upon to give horticultural talks and/or demonstrations to various interested groups, or on TV programs. Between them, in 1957 they filled 38 such speaking engagements, in 1958 48, in 1959 47. Their subjects on these occasions included pruning demonstrations, talks on poisonous plants, the Arboretum plant collections, desirable garden shrubs, the best small trees for this region and so forth.

6) In the winter of 1957-58 the Arboretum Unit Council sponsored two series of weekly daytime classes on Botany for Gardeners, taught by Mrs. Page Ballard, Chairman of the Education Committee. Many diehard gardeners registered for and attended these classes with great enthusiasm. As the Arboretum flourishes with increasing public interest and support, the possibility of repeating similar botanical adventures should be strong.

7) Following this course, under Arboretum Foundation sponsorship, members of the Botany faculty of the University of Washington conducted a series of evening classes along similar but somewhat more advanced lines. Each lecture was followed by a graphic laboratory demonstration of the special subject of the evening and the students were so

*Mrs. (David) Metheny is Research Chairman for the Arboretum Units on the Unit Council Board.

fascinated by the material presented that the ensuing informal discussion went on well after the official closing hour of 10:00 p.m.

The Education Committee of the Arboretum Foundation is now offering a class in simple botanical study, classes in propagation by seeds and by vegetative methods, one on the theory of hybridizing which will be taught by two of the University Botany Department professors, and another in the practical aspects of hybridizing, with Arboretum staff members as instructors. These and other classes are included in the 1960 schedule.

8) If a young member of your family happens to be a student in the University's noted College of Forestry, he will have the privilege, in Prof. C. Frank Brockman's Dendrology class, of studying a great variety of trees where they are growing—in the Arboretum! Other students in the University's Departments of Zoology and Botany have the same advantage in their particular fields, as may be learned in more detail from articles in this issue.

High school classes will soon be following in the footsteps of these university-age elders. When junior high school and younger groups are also given this opportunity, everyone will commence to realize what a treasure our Arboretum is in our midst.

9) The obvious interest in things botanical demonstrated by the adult students in Mrs. Ballard's classes and those at the University persuaded the director of the Arboretum to permit the head propagator, Mr. L. J. Michaud, to give a series of classes on Propagation by Cuttings to "alumni" of the botany courses. Because of the very limited greenhouse space available for the purpose a group of only ten students could be accommodated. But the demand for such instruction was so insistent that a second group was formed a little later and, in all, eleven three-hour sessions were held.

Early in 1959 the Unit Council provided funds and contracted for building of a new aluminum greenhouse 40 feet long, with automatic ventilating and humidifying systems, to be used solely for propagation classes. This has proved both efficient and popular, and has been in regular use through the latter half of the year.

10) In the spring of 1958 and again in 1959, the King County Girl Scout Council requested the cooperation of the Arboretum in instruction of Girl Scout troop leaders in the flora of our region. The group, limited to forty students because of available facilities, was given instruction by Mr. Witt, assisted by volunteers from the Arboretum and Girl Scout memberships. They learned how to use the self-guiding map for identifying native trees and shrubs. They were given demonstrations of tree planting and tree and shrub pruning. And they were instructed in the use of sprays, etc. for control of various plant infestations. The Girl Scout Council has asked for repetition of this valuable educational program.

11) Every member in good standing receives, four times a year, the *Arboretum Bulletin,* a journal outstanding for its excellence both of subject matter and appearance. A glance at the table of contents of any recent issue will make it clear why so many cover-to-cover readers feel a warm satisfaction whenever the postman leaves the *Bulletin* in their box. Have you been wondering about how to collect the seeds from plants and to preserve them for next spring's planting? Would you like to make an armchair visit to a famous arboretum near Spokane, Chicago, St. Louis, Brooklyn, Boston? Do you wonder about those intrepid plant explorers of a century or two back whose names were given to so many of the flowers we love? How did the "pros" manage their gardening with that peculiar weather we had last winter, last summer? Would you like to know of a good gardening book to read? What are some good ground-cover plants for that steep slope? You didn't know there were dozens of other kinds of beautiful primroses, lilies, magnolias, oaks, maples? While enjoying your privilege of receiving

the *Bulletin,* you may remember that you are in company with readers not only in Seattle but all across the United States and in Canada and eleven other foreign countries. Those two readers in Poland, and the two in Russia, do they have firesides to sit by, or perhaps a pot-bellied stove?

12) If you would like to see what this shrub looks like in bloom, what sort of shape that tree assumes when it's larger, the Arboretum has a collection of about 2000 color slides of plant material. Responsible groups may borrow them for showing, as well as the extensive collection of beautiful 8″ x 10″ photographs in black and white.

13) The large and constantly growing library with many fascinating, informative and beautiful books may be consulted on the premises. The catalogues and plant records are a valuable mine of information to the serious student.

14) The motorists in their routine rush to get from Madison Street to the Montlake Bridge use Lake Washington Boulevard through the Arboretum. But what about the drivers of the approximately 128,000 cars who traversed Arboretum Drive (the Upper Road), the one that is marked "Closed Daily by Police at Sunset," in 1957, and the comparable number in 1958? Some of them, of course, were the people who parked in one or another of the dozen parking areas and got out to stroll peaceably enjoying the wonderful camellias, the lovely flowering cherries, the rhododendrons and azaleas, the brilliant fall color of maples, oaks, sourwoods, the charming Winter Garden, the superb magnolias, great trees, little bushes, flowering bulbs. Hundreds of out-of-town visitors have found these beauties one of Seattle's surprises and prime attractions.

Of the Arboretum's collection of over 500 species of trees, more than 400 are natives of other climates brought here for experiment and enjoyment. There were, on recent count, over 1700 species (not individuals, mind you) of shrubs, but the collection grows so persistently that it is all but impossible to keep the count current. The planting goes on and on, the amount varying with vicissitudes of the weather and so forth.

15) If you and a friend can spare more than just a few minutes, why not bring along a sack lunch and your thermos and enjoy it at one of the picnic tables set out for your convenience across the road from the office?

16) If you belong to one of the sixty-plus active Arboretum Units, you may sometimes have the privilege of attending the pleasurable and interesting Unit Quarterly meetings. When the old dream of a Floral Hall becomes a reality, and there is a really adequate building to house such meetings, lots more of us will be able to attend together. Meanwhile, avail yourself of such opportunities as come your way. You'll really like the programs!

17) Surely your spark of civic pride will be fanned by the thought that Seattle's Arboretum seed list goes to more than sixty recipients in the United States and to addresses on every continent on earth. Well, perhaps not Antarctica—yet! These participants in the seed exchange are other arboreta and botanical gardens all over the world. Like other recipients of seed catalogues, they pore over our list at length and, in the 1957-58 season, 121 institutions or individuals ordered from us some 2350 packets of our seeds. A year later, in spring 1959, 3334 packets were distributed to 133 institutions. No fancy colored dream-pictures in our list, so now we begin to see some sense to those botanical names that seem such a bugbear to many an amateur gardener. The horticulturist in the Crimea calls his shrubs and trees by the very same names we use for ours, in Latin, and if he knows only one thing about Seattle, Washington, U.S.A., it is that one of the world's excellent arboreta is there.

18) He'll send some of his seeds to us, too, if we can use them. In fact, he has sent some excellent material to us, from Japan, New Zealand, the USSR, Great Britain,

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A Cross-section of Arboretum Plant Introductions

J. A. Witt*

IN ORDER to fulfill its potentialities an arboretum must do much more than merely grow trees and shrubs. It must see that its specimens are properly labeled; it must study the various cultural requirements of its charges; it must display the material it is growing in a manner that will show the plants in pleasing situations, yet in some sort of sytematic arrangement. An arboretum must also perform an educational function, passing out to the public at large what information it has gained, and finally it must make a determined effort to introduce new trees and shrubs to the area which it serves.

The University of Washington Arboretum has been dedicated to this last requirement since its inception, and a list of its introductions into the Puget Sound area would be extensive indeed. Of maples alone the Arboretum has introduced some twenty-two species or varieties, most of which had never been grown here before, and this excludes the very large collection of named Japanese maples, clones of *Acer palmatum,* which were imported from Japan in 1940 and 1941. The list could go on and on, but many of the plants included would be of only botanical interest, or at most of some importance to the forester. Rather than make an inclusive listing at this time, this article will attempt to give a cross-section, so to speak, of what the Arboretum has done and will continue to do in the way of plant introduction.

It must be admitted that claiming to have the first, or the only, plant of its kind is somewhat dangerous, particularly in this area where we have so many people interested in fine plants, such as Carl English, Jr., Leo le Blanc of Kent, Washington, Mrs. Else Frye and a host of others that have been bringing superior trees and shrubs into this section for the past fifty years or more. With this in mind, and with an apology to anyone who has unbeknown to us introduced any of these plants at a prior date to ours, we present an even dozen of our most important "firsts."

Betula platyphylla var. *szechuanica.* The Szechuan white birch has proved to be one of the best birches for its clear white stems and rapidity of growth. Collected by E. H. Wilson in western China in 1908, this birch was considered to be one of the "most promising of newer birches" by W. J. Bean and it certainly is so with us. We have trees now nearly twenty-five feet tall with brilliant silvery-white trunks and good erect habit grown from seed received from the Royal Botanic Garden, Edinburgh, Scotland in 1945. These are growing near the center of Foster's Island where they make bright streaks against the more somber oaks and pines. Younger plants, seedlings from the Foster's Island trees are growing very well on the bank south of Madison Street and along Azalea Way.

Camellia Williamsii 'Donation.' This plant will certainly be one of the best camellias of its type for a good many years, since it combines beauty of flower, attractive foliage and interesting habit into a hardy and sturdy broadleaved evergreen. The whole class of *Camellia Williamsii* hybrids is superior since it unites the best traits of *C. saluenensis* and *C. japonica.* This happy cross was first made in Cornwall, England, before World War II by Mr. J. C. Williams, although our subject, 'Donation,' was hybridized by Colonel Stevenson Clark, also of England.

Our first plants of the *Williamsii* crosses, 'J. C. Williams' and 'First Flush,' came from the late W. J. Marchant, English nurseryman, in April 1948, and 'Donation' was received some four years later through the good offices of T. H. Everett and the New York Botanical Garden. It has done well in

*Mr. Witt joined the Arboretum staff in December of 1952 as recorder. He was made assistant director in July 1957.

the lath houses where it first flowered in 1955. Since then it has bloomed regularly in the early spring, setting up scores of 4- to 5-inch semi-double flowers of bright rose-pink, of a wonderful texture, like silk brocade. Not the least of its charm is the long flowering period—often starting in late February and continuing through April, a trait in common with the other clones of *Camellia Williamsii.*

Cistus Palhinhaii. The rock roses, while perhaps a bit on the tender side, offer some of the finest ornamental evergreen shrubs available for that hot, dry, problem bank. One of the best of the medium sized cistus is *C. Palhinhaii,* a species from Cape St. Vincent, S.W. Portugal. Although long known to botanists, it was not grown as a horticultural subject until 1939 when Mr. Collingwood Ingram introduced it. We received seeds of it from Mr. Ingram in 1947. In July 1948 a group of plants from this seed was set out in the Cistus area, where by 1953 it became evident that there were several different forms of this plant, some tall, some compact, but all clearly related to *C. Palhinhaii.* Research into Mr. Ingram's writings showed that he had described several hybrids of *C. Palhinhaii,* including the one named 'Paladin,' a cross with *C. ladaniferus,* compact, glossy green and with large white flowers spotted with blotches of maroon. Another of Ingram's hybrids, 'Elma,' *C. Palhinhaii* X *C. laurifolius,* is a taller plant of looser habit, with a white flower. Interestingly enough, Mr. Ingram's seeds turned out to include the species and both hybrids, which we are calling 'Paladin,' Seattle form, and 'Elma,' Seattle form, since they are not from the clonal material originally described. *C. Palhinhaii* itself is a stocky shrub with glossy, sticky evergreen leaves, and 3-inch flowers of a satiny white marked with a yellow eye in the center. It and its hybrids are tender in the coldest years, but grow so well and come so easily from cuttings that though they may be killed they can be quickly replaced and will be flowering within two years. For the right situation they are among the best of our new introductions.

Cornus Nuttallii cv. 'Eddie.' Our native flowering dogwood appears to be a rather stable plant in that there are very few forms available, other than the typical. Several years back a variegated leaf dogwood was found by Eddie & Sons Ltd., nurserymen in Vancouver, B.C. Where they found this, or what its prior history is, we have no details, but we received and planted two young trees of this stock in November, 1947. These flourished and are now sturdy trees of about 23 feet, well branched, and flowering twice each year, once in April, and again strongly in late August and September. While the blooms are very good, they are no better than many native dogwoods in the Arboretum. Rather it is the variegated foliage that commands attention—the leaves are of the usual deep green, but veined and marbled with creamy white, much as in the variegated aucuba. This is unusual enough to make the trees stand out from among their neighbors, but in the autumn when the foliage turns they are at their very best. The green portions of the leaves turn a pinky-bronze while the white areas turn straw yellow. Other leaves remain green and white, the whole with the large white 'flowers' makes an unforgettable sight especially when backlighted. Perhaps this represents the first "break" in our Pacific dogwoods that may portend other forms for the future.

Cupressocyparis Leylandii. The Monterey cypress, *Cupressus macrocarpa,* is a California native of unusual beauty but with little chance of surviving in our climate. *Chamaecyparis nootkatensis,* the Alaska cedar, is found from Alaska to Oregon and is native in our Cascade Mountains. It is an attractive conifer with fern-like foliage and a somewhat pendulous habit. It is quite hardy and grows well in our area. Seventy-one years ago these two Pacific Coast trees were growing together in an estate in England where seedlings grown from the Alaska cedar seed produced an obvious hybrid between the two, but it was not until 1926

that the hybrid was officially recognized and then another twelve years passed before it was described as *Cupressocyparis Leylandii* in botanical literature.

The Arboretum's specimens came as scions from the Institute of Forest Genetics, Placerville, California, in 1950, and are now trees of twelve to fifteen feet. In habit it is similar to the Lawson cypress, full and bushy with bright green fern-like foliage and a probable ultimate height of 60 to 100 feet. The rate of growth, well over a foot a year, its hardy constitution which helped it survive the 1955 freeze with relatively minor damage, its ease of propagation from cuttings, and its full habit promise to make *Cupressocyparis Leylandii* one of the best evergreen screening and hedge plants for our area. We have planted some small specimens along the fence west of the greenhouse for this purpose.

Cytisus Battandieri. The Atlas Broom is one of the few shrubs native to the African continent which do very well with us, but since it is native to the Atlas Mountains at elevations of 5,000 to 7,000 feet it has survived our coldest winters. In 1939 we received seed of it from the Villa Taranto, a notable garden in Pallanza, Italy; by 1943 the first plants had put forth their large tight clusters of fragrant golden yellow flowers at the ends of the shoots. It has not failed to flower every June since. The foliage is nearly as attractive as the flowers; a silvery gray, laburnum-like leaf of unusual size for a broom, sometimes nearly three inches long. It does not have a good habit, is leggy and awkward especially when mature, but this probably could be corrected by judicious pruning. Our largest plant is about 10 feet tall and is located at the top of the hill north of Woodland Garden, on the west side of Arboretum Drive North. This is the original plant and others—grafted on Laburnum since it is very difficult to root from cuttings and has yet to set seed for us—are between the Rock Garden and the Holly collection.

Arctostaphylos Stanfordiana. The Stanford manzanita is considered by many horticultural authorities as among the best of this very ornamental group of shrubs for our gardens. It possesses many fine attributes including neat and glossy evergreen foliage; bright reddish brown stems with exfoliating bark; charming tight clusters of ¼″ pink waxen urns that are its flowers; an interesting habit, erect yet spreading enough to make a good cover, and not the least, a constitution that enjoys our cool climate, provided the plant has a sunny, well drained location. Although we first grew this species in 1941, our present plants came from Carl Purdy, Ukiah, California, in 1947 and were probably collected in northern California. They were planted on the bank east of the parking area at the head of Rhododendron Glen in 1947. Two of the original three are still thriving, one about 3 feet tall and as much or more across, the other more erect and open in habit. Both appear to be completely winter hardy and have been propagated by cuttings which root fairly easily.

Malus 'Blanche Ames.' Perhaps when this arboretum reaches the maturity of Arnold Arboretum we shall be able to spread our wealth of plant material as freely as does that great institution. We have been the recipient of many wonderful gifts from them, but certainly none more horticulturally outstanding than 'Blanche Ames' crabapple. We received it as a two-foot specimen in 1950, it first flowered in 1953 and has been treating us with a cloud of pale pink to white semi-double flowers ever since. In habit it should be well enough behaved for the smallest garden, since its ultimate height will be around twenty feet. About the only drawback of this neat little crabapple is its fruits. They are not nearly so attractive as some of its relatives, being small, yellow and red and dropping early in the fall.

Pinus kwangtungensis. This is in some ways the most interesting of our many plant introductions since we were growing it under this name eight years before the name was published. Even its source is a mystery, our records showing it was received here in

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Birds of the Arboretum

EMILY HUDDART HAIG*

OF the 265 birds seen and recorded in the Puget Sound area by Earl Larrison, 115 have been seen in the Arboretum, including Foster's Island. This is a list I have taken over a period of ten years and 88 field trips. It includes fourteen accidentals (birds seen but once), thirteen species of water birds, thirteen species of shore birds, eight species in the air and sixty-eight land birds.

All species with a few exceptions have been observed both in the Arboretum proper and Foster's Island Bird Sanctuary. Local and visiting ornithologists will find a variety of habitats in the 253 acres that make it attractive to different species. There are conifers, deciduous trees, open areas with grass, wild places, marsh lands, low shrub growth, as well as many berried shrubs and trees inducive to birdlife for homes and nesting.

The largest number of birds may be seen during the migratory months of April, May, September and October. During these months some forty or more species may be observed in any one day while during the balance of the year an average of twenty or more a day may be seen.

In the middle of winter when the Christmas census is taken annually by the Seattle Audubon Society there were noted in one year, 1956, on December 27th, 24 species and 446 individuals. On December 28th, 1958, 33 species and 1165 individuals were counted in the Arboretum.

In October the northwestern robin leaves for the south and the western robin comes in from northern areas and the mountains where they nested to spend the winters with us, leaving again in spring when the former returns.

All song birds discontinue their song after nesting and during the molting season in late July to August, until the following spring. The exception is the song sparrow, a resident bird whose song is heard throughout the year. An effort has been made to encourage the return of the wood duck, once seen annually years ago in the lagoons surrounding Foster's Island, by putting up nests.

Accidentals noted in the Arboretum include the following:

(WV) Snow Goose, immature, Jan. 1955
(WV) Red-Breasted Merganser, Oct. 1958
(WR) Black Pigeon Hawk, Sept. 1951
(WV) Ruffed Grouse, Jan. 1951
(R) Sora Rail, Apr. 1959
(SM) Wilson's Snipe, April 1951
(ACC) Yellow-shafted Flicker
(SM) Townsend Solitaire, Feb. 1951
(FM) American Pipit, Sept. 1951
(WV) Northwestern Shrike, Jan. 1955
(R) Black-headed Grosbeak, Apr. 1950
(WV) Red or Sitka Crossbill, Jan. 1952
(R) Western Meadowlark, Apr. 1953
(WV) Snowy Owl, Jan. 1955

Other birds observed are:

(WR) Horned Grebe
(WR) Eared Grebe
(R) Pied-Billed Grebe
(R) Double-crested Cormorant
(R) Brandt's Cormorant
(R) Great Blue Heron
(SR) Anth. Green Heron
(R) American Bittern
(WR) Canada Goose, also (SR)
(WV) Cackling Goose
(R) Mallard
(WV) Gadwall
(WR) Baldpate
(WR) Shoveller
(WR) Ring-necked Duck
(WV) American Golden-Eye
(WR) Buffle-head
(WR) Ruddy Duck
(WR) Hooded Merganser
(WV) Sharp-shinned Hawk

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*Mrs. (Neil) Haig is past president of the Seattle Audubon Society, and a member of the Board of Directors of the Arboretum Foundation; also chairman of the Special Projects Committee.

The Botanists' Use of the Arboretum

A. R. Kruckeberg*

I TRUST that you, learned reader, know what is meant by the word "botany." To you, it is the scientific study of plant life in all its ramifications—not merely the desultory collecting and naming of wildflowers, mosses, or mushrooms by rather tame old maids and fusty, elderly gentlemen. In its probing into the many complex "unknowns" of plant life, botany has become compartmentalized, and, like all sciences, each cubicle of botanical knowledge has its specialist. Thus it is that one botanist's view of the value of an arboretum is decidedly not that of another's, though each respects the other's vested interests.

On the local scene, our University of Washington Arboretum is valued by the staff of University botanists in divers ways. There is our mycologist, Dr. Daniel E. Stuntz, who roams the Arboretum in the fall for the tide of mushrooms that sweeps over its lawns, cultivated plots and wild areas. Then in the spring, he will be watching the pools and streams for signs of other fungal life. The Arboretum, then, in being a sanctuary of relatively undisturbed communities of organisms is a dependable source of a variety of fungi, for classroom and research purposes.

Then there are the two plant physiologists in our Department. Dr. Bastiaan J. D. Meeuse specializes in the metabolism of plants. He finds special satisfaction in the ease with which he can get class and research materials from both the Arboretum's greenhouses and the outdoor areas. Quite apart from his studies on plant metabolism, Dr. Meeuse is wrapped up in the fascinating subject of floral biology, the interplay between animal pollinators and their floral hosts. With the great diversity of cultivated and native species belonging to many different plant families growing in the Arboretum, he finds ample floral types for observation.

Our other plant physiologist, Dr. Richard B. Walker, studies the vital problems of uptake and movement of water and inorganic salts in plants. He finds the Arboretum a ready source of a wide array of species for testing comparative water loss through evapotranspiration. The excellent conifer collection has been particularly useful in these studies.

Others of us—Dr. C. Leo Hitchcock, Dr. H. Weston Blaser, and I—utilize the Arboretum in yet a different way. Our classes on plant identification and in plant morphology and anatomy are enriched by the presence of an Arboretum abounding in woody representatives of the floras of the North and South temperate zones of the world. In particular, as a teacher of classes in ornamental plants, I could find no substitute for this truly great living collection of hardy trees and shrubs.

Quite apart from the very tangible assets of the Arboretum as a living collection of exotic and ornamental woody plants, is the uniqueness of the setting. Here is one place in the city of Seattle where the biologist (whether his major allegiance be in botany or zoology) has at hand the resources of an irreplaceable natural area. The ponds, the streams, the native stands of fir and cedar, the thickets of understory vegetation constitute invaluable biological communities. Left untouched, these can provide both the practical needs of the biology classroom and laboratory and diversified study areas for field courses. But more lasting than such tangible uses is the satisfying of an inner need, by evoking in student and teacher alike, a feeling of peace, beauty and respect for the world of Nature.

*Assistant Professor of Botany, University of Washington, and member of the *Bulletin* Editorial Board.

Uses of the Arboretum Ponds by the Department of Zoology, University of Washington

K. L. Osterud*

THE FOUR small ponds in the Arboretum are being utilized currently for a dozen undergraduate zoology courses, about a third of those taught in the department. Most often, living animals are collected for later study in the laboratory, but birds or other vertebrates are observed in their natural environment. Each spring one class sets up its microscopes by the lower pond to survey the protozoa and, inevitably, other minute creatures. On this occasion friendly visitors often get their first look at microscopic animals.

The lower pond has been a remarkably rich source of protozoa, and a dependable source of other small animals including hydra, planaria, leeches, crustaceans, insects, and snails. A few eggs of tree frogs and salamanders are collected each spring by zoologists for observation and experiment on growth and development. Since far more are taken by numerous small boys, it has been necessary to restock the area from time to time with adults captured elsewhere. A recent Master's thesis in zoology was based in large part on salamanders from this source.

Some of the snails harbor parasites which develop first in them and later in frogs, salamanders, muskrats, ducks, and other animals which visit the pond. Goldfish, contributed frequently and apparently by many persons, have been hosts at different times during the past year to four kinds of parasites, two of which killed most of the fish. One, which may or may not be harmful, most likely has not been observed before, and is expected to be the subject of a Master's thesis during the coming year.

Potentially much greater research could be made of the Arboretum ponds. A dis-

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*Assistant professor, Dept. of Zoology, University of Washington.

THE CHANGING SCENE

THE following four pairs of photographs, taken at an interval of ten or eleven years, dramatically show the improvements wrought in the course of a comparatively short period of time in the life of an arboretum.

In the first, where brambles and weeds once grew thickly is now an open grassy area bordering the lagoon, with a convenient parking place in the foreground. The distant stakes indicate maples recently planted—three sugar, one red—for future ornament and color.

The second shows the road leading past the north gate of the Arboretum towards Broadmoor, in 1948 overhung by native alder, maple and other trees but by 1959 cleared and improved in every respect. A Paulownia tree is thriving at the corner of the parking area, a swamp white oak *(Quercus bicolor)* beside the north gate.

The giant Sequoia trees in the third pair of pictures are believed to have been planted about 1938-39, thus illustrating their growth here at ten year intervals. The tallest of the two central trees is now about 43 feet high. The site is in the Leguminosae section on the east side of Arboretum Drive North, near the Cistus collection.

In the last pair the view is in the same direction but looking north instead of south. The small tree in the right foreground is a Colorado white fir *(Abies concolor)*, now 17 feet tall.

B.O.M.

Photos by: Wm. Eng and E. F. (Whitie) Marten

Area surrounding lagoon September 1948

Same area November 1959

Road outside north gate September 1948

Road outside north gate November 1959

Young giant Sequoia trees January 1948

Group of giant Sequoia trees November 1958

Area east of upper road January 1948

Same area November 1958

Arboretum Plant Collections*

II—MAGNOLIAS

(Continued from Fall, 1959)

M. sinensis (Rehd. & Wils.) Stapf (1924) W. Szechuan, W. China
Hillier & Son Nsy., Winchester, England (1947; pl.); G. H. Johnstone, Cornwall, England (1948; sd.); T. Hilling Nsy., Chobham, England (1949; pl.); Veitch & Son Nsy., Exeter, England (1949; pl.)
Whilst similar in general appearance to *M. Sieboldii* the broad obovate leaves are covered beneath with silky hairs; the flowering season here is early May, the blooms with their red anthers completely pendulous, very fragrant. One plant was killed by cold in November 1955, one cut to ground level (the Veitch plant), others unharmed. Both 1947 and 1948 introductions are now about 8 ft. tall; their first flowering was in 1958 and 1959 respectively. Coll.

M. Slavinii Harkness (1954) Nat. garden hybrid; Rochester, N. Y.
First flowered 1917. *(M. salicifolia X ? M. Soulangiana)*. B. Harkness, Rochester, N. Y. (1957); sc.)
A small tree, evidently similar in form to the female parent, *M. salicifolia*, but judging from photographs published with the original description in the *Nat. Hort. Mag.* (April 1954) very superior in flower qualities. Its blossoming here will be awaited with much interest. Nsy.**

M. Soulangiana Soul. (1826) (M. denudata X M. liliflora)
Gdn. hybrid raised in France; first flowered in 1826.
Kiyono Nsy., Semmes, Ala., (1940; pl.)
The most adaptable, ornamental and widely appreciated of all magnolias, as hardy as the male parent *(M. liliflora)* but more like the Yulan *(M. denudata)* in size and form of plant, intermediate in time of bloom (mid April to mid May) and size and shape of flower; color white flushed and veined rose-purple outside, fragrant. Seedling variations are numerous, but their histories are generally unrecorded. Ht. 16 ft. Coll.

'Alexandrina'. Taylor Nsy., Seattle, (1953; pl.). Flowers white, heavily stained rose-purple, usually mid to ate April.
Ht. 10 ft. LV.

'Amabilis'. Parry Nsy., Signal Mtn., Tenn., (1949; pl.); W. B. Clarke Nsy., San Jose, Calif. (1956; pl.). Flowers white, mid to late April. Original introduction wrecked by falling tree. Ht. of second, 5 ft. LV.

'Brozzoni'. Layritz Nsy., Victoria, B. C. (1947; pl.). The latest in flowering season, possessing the largest blooms, white with a slight purplish tinge at the base. Eventually forming a very large specimen, ample room is required for development. The early freeze of November 1955 killed two plants (of three) to the ground; these are now 10 feet tall, the third 12.5 feet. RG; Coll.

'Burgundy'. W. B. Clarke Nsy., San Jose, Calif., (1952; pl.). Described by introducer as having flowers much larger than type, purple outside on lower half. No data has been recorded here. Ht. 10 ft. LV.

'Lennei'. Gdn. origin in Italy, prior to 1850. Kiyono Nsy., Semmes, Ala., (1940; pl.); Dept. of Botany, Univ. of Botany, Univ. of Kentucky, Lexington, Ky., (1945; sd.); D. G. Graham, Seattle, (1948; sc.); Prentice Nsy., Seattle, (1947; pl.). With its broad leaves and heavy, obovate flowers with their thick, spoon-shaped rose-purple tepals, this is as distinct as it is handsome. It is also one of the later blooming varieties, often at its best in early May, but has not been so successful here as some others, probably due to site conditions. Ht. 5-7 ft. Coll.

'Lennei alba'. D. G. Graham, Seattle (1948; sc.). A very attractive white form of the last, also of European origin. Ht. 9 ft. Coll.

'Pelton'. J. A. Buzard, Bellevue, Wash. (1954; pl.). Obtained from a Californian nursery, no information is available as yet on this clone. Nsy.

'San Jose'. W. B. Clarke Nsy., San Jose, Calif. (1952, 1956; pl.). An early flowering variant, the flowers white with pink flushing. Ht. 6.5 ft. (1956 intro.; earlier plant destroyed by falling tree). LV.

'Speciosa'. D. G. Graham, Seattle (1952; sc.). Notably upright in form, more compact than others, this may be useful in small gardens where space is valuable. Flowers white with slight purplish coloring at the base. Ht. 10 ft., 11 ft. (two plants). N. end of Azalea Way.

'Triumphans'. W. B. Clarke Nsy., San Jose, Calif. (1956; pl.). Received as *M. denudata* 'Triumphant,' but clearly a form of M. Soulangiana. Flowers early, even on a NW slope, rose purple outside, white within, the tepals of firm texture. Ht. 11 ft. RG.

M. Sprengeri Pamp. (1915) diva Stapf (1927) C. China
D. G. Graham, Seattle (1952; sc.). From the extensive description and superb color plate published in Mr. G. H. Johnstone's invaluable work, *Asiatic Magnolias in Cultivation* (R. H.S., 1955), it is evident that this Chinese tree must be one of the most beautiful of its race. The large rose pink flowers appear, like those of its more tender relative *M. Campbellii*, on the bare branches in March and April, but for this sight we will have to be patient as our sole specimen is at present barely six feet tall.

M. stellata (Sieb. & Zucc.) Maxim. (1872) Japan
M. Kobus var. *stellata* (S. & Z.) B. C. Blackburn (1955). Campus Nsy., Seattle. (1948; pl.)
Together with *M. liliflora* this is certainly the most useful magnolia for small gardens and one of the best known, in its hardiness, reliability and profusion of flowering in early

(Continued on Page 142)

The Arboretum Bulletin

Vol. XXII, No. 4 Seattle, Wash. Winter, 1959

ARBORETUM FOUNDATION
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Monday through Friday
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Special Notice

To keep memberships in the Arboretum Foundation in good standing, dues should be paid during the month payable. Active memberships more than three months in arrears will be dropped and The Bulletin will be discontinued.

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The Arboretum Foundation,
University of Washington Arboretum
Seattle 5, Washington

I hereby apply for membership in the Arboretum Foundation and remittance for same is enclosed to cover dues for the next succeeding 12 months.

Name .....

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All memberships are non-assessable.

Twenty-Five Years of Progress

EVERY major accomplishment in this country has been the result of somebody's dream. Before the dream became a reality it was imparted to others who perhaps helped only by enlarging the dream or perhaps by finding ways of implementing the dream. If we look around Seattle we find many dreams which have come true—the University of Washington, the Lake Washington Ship Canal, the Seattle Art Museum, the Seattle Historical Museum, the Lake Washington Floating Bridge, and the University of Washington Arboretum.

For many years the late Dean Hugo Winkenwerder dreamed of an arboretum located here in the northwest with all of its climatic advantages, one which might develop and take its place among the outstanding arboreta of the world. Eventually he was joined by other dreamers who formed the Arboretum Foundation and helped not only in the planning but in the financing. As time went on the financial problems were largely assumed by the State, through the University of Washington. However, the Foundation continued to help in the planning and, on a lesser scale, continued to give helpful and needed financial support. The Arboretum would not be what it is today without the aid of the thousands of individuals working through the Arboretum Foundation, its units and the many garden clubs.

Through the years there have been many struggles and heartaches, but through it all the development of the Arboretum has gone ahead. Today we find the Arboretum established as one of the leading arboreta of the world, a place it has attained through the cooperation of many individuals and organizations. Those of us who are intimately connected with the Arboretum know that our struggles are not over. However, we have fought a good fight—we have kept the faith —we will continue to go ahead.

Gordon D. Marckworth
Dean, College of Forestry

GARRETT ECKBO has said, "Trees, rather than architecture, are the best measure of the civilized landscape." Surely then, a great park in the center of a bustling city is an indication of community maturity. The Arboretum is that for Seattle and a great deal more.

Members of the Foundation are more privileged than most citizens of the town. By virtue of their more personal interest in and close association with, this great botanical garden they share its successes almost as if they were their own. By working for and supporting the Arboretum they generate great enthusiasm and activity, to their own gratification and enjoyment. That this energy has benefited the Arboretum, too, is readily apparent in this, our twenty-fifth anniversary year.

A quarter of a century is not a long time. One generation. But the growth and accomplishments of the Arboretum have been tremendous. A wooded area, covered by native growth and interlaced with bridle paths has become one of the world's leading plant laboratories. The old "speedway" of riding academy days is now the colorful and famous Azalea Way. In only one generation Seattle has acquired in the heart of the city a magnificent park and botanical garden that is world renowned and envied.

In addition to the actual building and planting of the grounds, these years have seen a vast amount of horticultural information and education contributed to the people of the state. The Arboretum has also continued to serve as a public park and the scene for many activities in the public benefit.

So much has been accomplished in this short span. It is the result, of course, of intelligence, hard work and enthusiasm. From the beginning, members of the staff have cooperated closely with members of the Foundation as they sought to help toward the common goal of a finer Arboretum. During the last eleven years, the period of greatest growth, leadership has been in the capable hands of our distinguished director, Brian Mulligan, who, combining the qualities of horticultural knowledge, esthetic appreciation and complete cooperation, has developed the unqualified support of all.

Looking back with pleasure and satisfaction on what has gone before, the Officers and Directors of the Foundation now turn their gaze eagerly toward the next twenty-five years, in complete confidence of greater things to come.

EDWARD B. DUNN
President of the Arboretum Foundation

While several steps had been taken in the late 20's and early 30's towards establishing an arboretum, nothing tangible had resulted. Because of nation-wide unemployment in the early 30's and the availability of WPA funds, Loren Grinstead was the first one, I believe, to visualize the possibility of using WPA funds in connection with an arboretum. Mrs. Grinstead called a meeting at the Broadmoor Clubhouse in 1934, and from the group at this meeting, and others who joined them, came the original incorporators of the Arboretum Foundation.

Those of us who signed the original articles were imbued with great hope and grand expectations. The Arboretum did not come into being overnight. Many difficulties were encountered, especially in connection with financing. WPA projects, while valuable, did not suffice, and the Arboretum Foundation furnished financial assistance, together with liaison between the University, the public, the Legislature and state officials.

Now, twenty-five years later, after surmounting many difficulties and crises, I think all of the people who worked so hard and faithfully, both in the University setup and in the Arboretum Foundation, can take pride in the result. The task is not finished, but we have today one of the most outstanding of the arboreta existing in this country.

I would like to emphasize that, while the pre-eminence of the Arboretum today represents the combined efforts of many people, the Director, Brian Mulligan, deserves a large measure of the credit. His vision, his plant knowledge and, above all, his ability to handle

people and get things done, have contributed more than any other factor to the progress we have made.

I am confident that the next twenty-five years will be even more spectacular than the past in Arboretum growth.

DONALD G. GRAHAM

THE CITY OF SEATTLE DEPARTMENT OF PARKS

October 23, 1959

Mr. Brian O. Mulligan, Director
University of Washington Arboretum
Seattle 5

Dear Mr. Mulligan:

The Board of Park Commissioners has noted with appreciation the zeal and technical skill with which the University of Washington Arboretum management has carried out its objectives to provide our city and its environs with a superior Arboretum that serves as a major recreational and educational asset for our citizens and guests.

In our cooperative relationship with the Board of Regents as landlord and tenant, we have taken unwarranted but understandable pride in the beautification and floral exhibits on the city property occupied by the Arboretum.

We extend congratulations on this 25th Anniversary of the founding of so fortunate an association with you, and anticipate your continuing success.

Sincerely yours,
BOARD OF PARK COMMISSIONERS
George E. Fahey, President

BOOK REVIEWS

Flowering Crabapples, by Arie den Boer, 226 pages. The American Association of Nurserymen, 1959. Price $4.95.

BOOKS on horticultural subjects are almost invariably written by someone with more than a passing interest in the subject matter. Rarely, however, do we find an author with such single-minded interest as Mr. den Boer has in crabapples. When this happy combination of author and subject occurs we can expect a very excellent and factual book. *Flowering Crabapples* is just such a book, full of the knowledge and love that only years of experience in growing and assessing these ornamental trees can give. The book is divided into two parts, the first dealing with the history, origin, flowers, fruits, culture, etc., designed to acquaint the reader with the types, care and proper selection of crabapples.

Part two is a detailed description of around 90 different species and cultivars, most accompanied by a line drawing of several leaves. Typically these include a short history, description of the flowers, fruit, and foliage, a discussion of its habit if unusual, and often brief suggestions as to use in landscaping. This section is followed by several charts which give a quick if perfunctory check list of the trees' salient features. Of considerable interest to the horticulturist is a series of line drawings of the flowers and a cross-section of the fruit; comparison of the fruit and flower of an unknown crabapple with these should allow one to arrive at a reasonably correct determination.

Unfortunately, no small book could include the myriad of crabapples grown, and two of the best in the Arboretum's collection are missing—'Blanche Ames' and 'Sundog,' but such a wealth of material makes up for any small lack. One word of warning, however; the climate and soils of Iowa are somewhat different from ours and the cultural suggestions are not to be followed blindly.

J.A.W.

Rock Gardens, by E. B. Anderson. Penguin Books, Inc., Baltimore, Md. (July, 1959). Price $1.50.

MR. ANDERSON has been closely associated with the English Alpine Garden Society and has served it in many capacities. In 1952 he was awarded the Veitch Memorial Medal in gold by the Royal Horticultural Society for services to horticulture.

The introduction is revealing and endearing. Cultivation of rock plants has been his greatest pleasure; he tells of his very earliest rock garden—a small place. He says, "I did not have much money in those days. I think this form of gardening requires neither broad acres nor a deep pocket nor abundant leisure and can give all the refreshment a hobby should." Then follow some pages on rock plants at home and descriptions of far places and their plants. Careful directions on construction—the making of screes, dry walls and such are given in detail.

Very valuable directions for planting and propagating, by divisions, cuttings, root cuttings and seeds are considered. And best procedures in collecting is given some thought. The greater portion of the book is given over to the plants themselves, with splendid photographs. Many of them show not single plants but little drifts—so much more charming. Not all the plants shown are rare. Personally, I think it is a great mistake to eliminate all common plants from a garden, so I appreciate this view.

This little book takes me back to a day when there were few real rock gardens in Seattle—Mr. Reber's garden and Mrs. Conner Gray's—with many attempts ending in "rockeries"—horrible thought! All in all, this little book is a treasure of information and simple guidance.

ELSE M. FRYE

ARBORETUM NOTEBOOK

This section is particularly designed for notes, information and queries concerning beautiful or unusual plants from growers of all types or experience. We solicit your remarks and ideas, but space limitations may sometimes restrict us to publishing those of the widest interest.

JANUARY

This month I have had a great deal of pleasure looking over back numbers of the Bulletin. I shall make this a routine and suggest it to all gardeners. It is amazing how fresh and new all information seems after a five or six year lapse of time.

January need not be dull. The different shades of green in the broad-leaved evergreens is interesting and beautiful. A light snowfall seems to change the color and make a glow on the rhododendron and camellia foliage.

On an occasional mild day in January spraying and cleaning up, while not an actual pleasure, is a good thing to do.

A visit to the winter garden in the Arboretum in January is a must. The *Camellia Sasanqua* plantings are probably still showing color and there are plants many of us wonder about. Every year I find shrubs I hadn't noticed before. *Pernettya mucronata* seems to have different colored berries every year. This is a shrub not used as often as it should be. The foliage is interesting and the masses of berries, in all shades of reds and pinks besides white, are like blossoms. They blend perfectly with the winter blooming heathers.

One of the most delicious scents in the garden comes in January and one never forgets the fragrance of "Winter Sweet" *(Chimonanthus fragrans)*. The blossoms would not be outstanding in the summer garden with much competition, but its dull yellow bells with a brownish center are interesting. It needs a rather sunny location in summer but should be protected from winter winds. It, as well as the climbing yellow jasmine, may be cut back fairly hard after flowering.

Viburnum fragrans is a winter-flowering shrub of great beauty. An aristocrat, indeed! Its tiny pink flowers form deliciously fragrant bouquets. In my garden it was planted in a south exposure against a brick wall. Now it stands eight feet tall in the garden of a friend. It is a great pleasure to visit it occasionally.

Now the willows are beginning to color. The branches are turning yellow before the leaves come. The alders along the country lanes are showing pink catkins making the tops of the tree glow with color. Violets are stirring. They like the earth around them loosened to give air to the soil. Because roses like a firm soil, there is a saying "Plant roses with a heavy foot."

Slugs often do their greatest harm in winter, underground. The soil should be pulled away from delphiniums especially, and slug bait scattered plentifully.

FEBRUARY

Did you know that a "rogue" in the garden is a plant that comes untrue to type from seeds?

Perhaps February is the most exciting month of the year. We appreciate the first buds that bloom which later we accept but without the same enthusiasm.

I think the tiny winter aconite *(Eranthis hyemalis)* was the first thrill of the year because I had difficulty growing it. To have success I learned the bulbs must be freshly dug. The best I ever found were for sale at a public vegetable market in Victoria. The bulbs had been taken from the soil the same day I bought them. That little patch in my garden was one of my greatest pleasures. They finally spread into a fairly large space.

The Japanese apricot tree, *Prunus Mume,* is moderately small with fragrant, double white or pink flowers. I remember one in a Seattle garden leaning over a small pool where its deep pink blossoms were reflected in the water. In the same garden were two

white-barked birches planted near together. Their bare branches and twigs made a contrasting beauty that would be difficult to match.

Again I say it is astonishing how few gardeners grow the hardy cyclamen. No ground cover can compete with them. I started with a few little corms and in fifteen years or so I dug up the same corms and some were as big as my head. Hundreds of blossoms came from one corm and the beautiful leaves vary in shape, color and scallops at the edge. They were planted along an old log in the woods. The log was covered with delicate, evergreen ferns and lacy, red huckleberry bushes planted by nature.

If you have a fairly large planting of rhododendrons, birches may be sparsely planted among them. The silver stems, blotched with brown and gray, deepen the tones of the rhododendron foliage and break the contour of your planting. A leafless birch tree is one of winter's beauties.

When winter seems too long to come face to face with another day, cut some bare branches of forsythia, flowering cherries or what-not and force them in a fairly warm room. Spring will seem around the corner.

MARCH

There will be days in early March when spring is really here; garden soil is sweet smelling, buds are bursting and garden work seems the most thrilling of all occupations. Now is the time for particular duties. The large rhododendron family *(Ericaceae)* should have its first feeding. Many shrubs may be fed now. Spraying may be completed in March.

The daffodils steal the show in March, first the tiny species and then the breath-taking new varieties. They seem to love the wind and rain. The important task in March is pruning the rose bushes. Also prune the large-flowering clematis *(C. Jackmanii)*, hydrangea, buddleias, heathers and all late-flowering deciduous shrubs.

Now watch the grafted shrubs and cut away all growths below the graft; these growths are much stronger minded than the grafted part. *Viburnum Carlesii* and *Hamamelis mollis* are frequently afflicted.

Iberis, Snowflake, is very showy as a ground cover. It produces sheets of white in sun or shade, poor or rich soil for weeks on end. This hardy candytuft is almost indispensable to the busy gardener. It takes care of itself at a time when there is much to be done.

At the exhibit of conifer branches and of fruiting trees and shrubs held in the Arboretum clubhouse October 16-18, examples of 58 of the former and 27 of the latter were on display. Among them were fifteen species of pines, seven of true firs *(Abies)*, eight of spruces and nine larches: some of these were kindly sent from the U. S. Forest Service arboretum at Wind River, Carson, Washington. Visitors were almost continuous while the exhibit was open.

A very unusual addition to our library in November was a copy of the seven-volume work, *The Trees of Great Britain and Ireland*, by H. J. Elwes and A. Henry, privately printed in Edinburgh, 1906-13. This, purchased from a bookseller in London, England, with funds from the Arboretum Foundation, was notable for having formerly belonged to Dr. A. Henry, one of the authors.

Among the first names chosen early in December to be inscribed in the proposed forestry Hall of Fame in Portland, Oregon are those of David Douglas (1799-1834), for whom the Douglas fir is named, and Hugo A. Winkenwerder (1878-1947), dean of the University's College of Forestry, 1912-1945, and first Director of our Arboretum, 1934-38.

Through a generous gift of $500.00 from the Arboretum Unit Council in November we were able to replace our old chain saw with a new 26-inch model which has already been put to good use, and to buy another 14-inch Merry-Tiller cultivator especially to control weeds around shrubs planted in beds.

What Goes On at the Arboretum?

(Continued from Page 120)

France and many other countries with comparable climates.

An important facet of the Arboretum's work is the introduction of new or little-known trees and shrubs. These may be wild plants of this or, more often, of other countries, such as the creeping juniper of the Siskiyou Mountains in southern Oregon, or the large collection of Japanese maples imported in 1940 and 1941. Or they may be plants which have appeared in gardens, parks, nurseries or elsewhere, noted as different and worth propagation. Examples are various local forms of red and Norway maples, our own 'Seattle Sentinel' maple and *Magnolia Kobus* 'Wada's Memory.'

Hundreds of new or rare woody plants have thus been introduced here by the Arboretum during the past twenty years, ranging from small groundcovers and rock plants to large trees such as pines, oaks and lindens which will not mature for many years. Some promising shrubs have already been propagated and distributed through the Washington State Nurserymen's Association; trees will take more time.

SUMMARY. The University of Washington Arboretum offers, at the present time, an increasing program of services, including horticultural information and botanical education, to anyone who cares to avail himself of them. It is an active participant in the international seed exchange, bringing in new plant material every year for testing and then, if found desirable, propagating it for wider use in this region. Its library of books, slides and photographs is a valuable reference source to the community, while its plant collections are unique in the Pacific Northwest.

Early Days in the Arboretum

(Continued from Page 112)

the past years has marked a steady advance evidenced by the increased variety and beauty of area displays.

With the passing years the importance of this institution will bring additional credit and distinction to the University and everyone who has helped should feel a measure of pride in the heritage left to the future.

JERRY MUNRO
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Growth and Development of the Arboretum Since 1943

(Continued from Page 116)

are easily seen from the Upper Road. In November, 1950, a further gift of 17 other kinds was received from the same generous source, so that our collection is now very representative of those species and their variants which can be grown in this climate.

From the winter of 1946 to the summer of 1948, more than one hundred books were added to the library, the majority by purchase, but some by gift or from the publishers for review; the pages of the BULLETIN bear witness to the last. Many essential reference works were acquired in those years and subsequently, until we now possess a most useful small library of books on woody plants, particularly of the temperate regions of the world.

In the wet spring and early summer of 1948 strenuous efforts were made to control the weeds; firstly by mulching the cultivated beds heavily with sawdust, generally fresh from the mill, accompanied by an application of fertilizer. A small quantity of hickory shavings was also available, and this material, which, through the kindness of the Anderson & Thomson Ski Co., has been supplied to us until late in 1959, has proved so much superior to the sawdust, in particular for its water-holding properties, that we long ago entirely abandoned the use of the latter material which soon forms an almost impervious covering to the soil.

The second method, by spraying with a 2-4-D type of weed killer solution, was used on the larger grass areas where the tractor could operate with the large trailer tank, fitted with a boom 12 feet wide. Good control of broad-leaved weeds was obtained by this means.

A new tractor was acquired during the summer to replace the old one—an essential item of equipment for many operations here.

Because of the wet season, planting continued much later than usual; hydrangeas were moved from the nursery at the end of

May and more than fifty plants of *Ledum* species in the first week of June. However, such plants as *Cistus, Helianthemum* and *Ceanothus* species were transplanted from pots even later in June.

Seeds were received this spring from other arboreta or botanical gardens in England, Holland, Italy, Portugal, China, Japan and New Zealand, to mention only a few prominent sources; the list has extended almost annually since then, although our needs now are considerably less than at that time when our plant collections were so much smaller.

An important task performed during the summer of 1948 was the cultivation and preparation of the land north of the Boulevard—later to become the Winkenwerder memorial area—to prepare for planting as soon as possible. This involved first the removal of numerous bramble plants, including the roots, as well as pieces of metal and concrete, then disking, plowing aud cultivating. In the end it was March, 1950, before any extensive planting (of crab apples) took place, but thorough preparation paid us well.

A considerable amount of grass was sown during the fall, in what is now the holly section, in the *Hamamelis* family across the Upper Road, the area for the *Leguminosae* north of Rhododendron Glen, through the peonies on the west side of the road, and finally on the fill over the old canal cut at Montlake where the soil was particularly poor and lacking humus.

More lilies were planted on the banks at the head of Rhododendron Glen, additional shrubby peonies in the collection, sourwood trees near the picnic tables. Mr. Hansen was making plans for the new camellia garden to be planted just south of the Glen, and of the area around the lagoon outside the north entrance, in preparation for clearance of much of the native vegetation, particularly elder bushes, alder and willow trees, for which purpose a fund was organized by residents of adjacent Broadmoor.

From a small but unusually interesting collection of seeds from northeast Mexico, received in October from Dr. F. G. Meyer of the Missouri Botanical Garden, St. Louis, we raised plants of two species of *Cornus,* of which one is still with us, a pine (killed in November, 1955), a cypress and the evergreen *Magnolia Schiediana,* which also remain. Other seeds came from a Kingdon-Ward expedition to Manipur, through the New York Botanical Garden, and of *Eucalyptus* species from Australia and Tasmania.

(To Be Continued)

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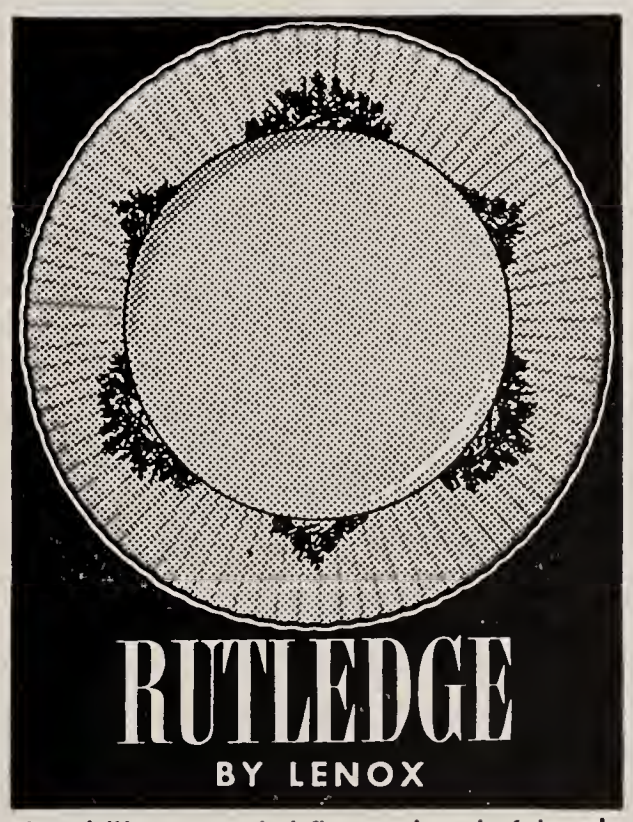

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The Value of the Arboretum to Seattle

(Continued from Page 117)

are carefully nurtured under expert supervision. Those proving promising for our Northwest climate are made available to nurserymen throughout the state. Thus all of us have the opportunity to grow new and different species from strange and exotic places, simply because the Arboretum has gathered, developed and sorted out the plants for us.

Another aspect of the Arboretum's value is often overlooked by amateur gardeners. Many of us, as the years fly by, find that the growing of plants is more rewarding than some other activities that have occupied our leisure hours. But many of us are burdened with a colossal ignorance of plant names, correct propagating procedures, soil cultivation and other necessary knowledge. The Arboretum can help us quickly overcome this deficiency in several ways. Most of the trees and shrubs in the Arboretum are clearly labeled with metal tags so we can identify and choose the ones we would prefer for our own garden. The Arboretum Foundation publishes an informative quarterly *Bulletin* primarily concerned with plants for the Northwest, a series of information bulletins, and has regular propagation classes, while the Arboretum office is always willing to answer particular queries by telephone or letter. These services are used by both amateur and expert as important aids in developing their gardens to the fullest potential.

But the main value of the Arboretum lies in its broad acres of rolling land, a place of peace and quiet in an ever-growing city. As the years go by, and Seattle's population increases to three-quarters of a million, then a million, and so on upwards, the value of the Arboretum to the city will be increased many times over. This ever-increasing press of population is the reason each generation must so jealously guard every square foot of the Arboretum against those forces wanting to nibble away a bit here, a bit there. Each time a new proposal is made to take away

another segment, the argument is that it is only a small piece and there is more than enough left. But once gone, it can never be replaced. Bridges and roads should and must be planned so that the Arboretum remains intact. Far better to tear down old houses and buildings for such projects than to continually chew away at this magnificent heritage.

As much as we value the Arboretum today, future generations will value and use it far more. They will rightfully condemn us if we are so shortsighted that we neglect to vigorously defend its integrity today.

Use of the Arboretum Ponds by the Department of Zoology, University of Washington

(Continued from Page 126)

tinguished biologist visiting the University this summer was very envious of the opportunity for the study of several unique organisms. In the hope of culturing perhaps one or two of the rarer protozoa in his laboratory, he took some dried mud back with him to Germany.

The character of the ponds changes considerably from year to year with an inevitable gradual accumulation of plants and sediment. Gardening in the vicinity and occasional dredging contribute to the renewal of nutrient cycles and an increase in both kinds and numbers of living things. Even the chance introduction of new and different animals, including fish and snails from home aquaria, is not necessarily undesirable. Although the goldfish have become heavily parasitized, the Japanese paper-shell snails have remained parasite-free, illustrating the principle that introduced species frequently leave their natural parasites behind and at least for a time remain immune to those in their new environment.

It is hoped that the Arboretum ponds, as very useful adjuncts to teaching and research at the University of Washington, will continue to be maintained in a productive condition indefinitely into the future.

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A Cross-Section of Arboretum Plant Introductions

(Continued from Page 123)

August, 1940, from Mr. D. O. Crummett of the Arboretum staff—but where he got the plant is not stated. It apparently didn't come in by the usual plant introduction routes since neither the U.S. Department of Agriculture Bureau of Plant Introduction nor Arnold Arboretum have any record of it. The name *Pinus kwangtungensis* was first published, without valid description, in China in 1938, and again, with a description making the name official, in 1948. It is native to the mountains of S.E. China where it may be a tree 100′ tall. Our specimen is now growing happily on a steep bank along Azalea Way and shows no tendency to become anywhere near 100′ tall. At the end of nineteen years it is about four feet high and as much across, of a delightful blue-gray foliage, with five rather short needles to a cluster which places it in the white pine group, related to the Japanese white pine, *P. parviflora*. While our specimen may not be typical of the general run of this pine since it has been moved about rather briskly, it would appear that it will grow none too fast, a good trait for our smaller gardens. It has one drawback for general introduction—to propagate it we must graft, which is a slow process, so it may well be that *Pinus kwangtungensis* will not become a general garden favorite for many years to come.

Rosa holodonta. Species roses, i.e. wild roses, as a rule don't give a long enough flowering period to pay their way with any other than a real rose enthusiast. There are many, however, that offer more than just blossoms. Some are of such a habit that they may be used as "living hedges," others are so attractive in fruit that they mimic the spring flowers. *Rosa holodonta* is in the latter category. We imported the seed of this western Chinese species from the National Rose Society of England in 1947. Ten years later the three plants in the rose collection were large arching specimens with some canes nearly twenty feet long. In May these long shoots are covered with 2½″ single bright rose-pink flowers borne in clusters of four to six. These last for several weeks and are replaced in the fall by brilliant scarlet flask-shaped fruits, some nearly three inches long, of a very waxy texture. These will hang on the canes well into October and give the plant a most festive look. Probably too large for the smaller gardens, this rose should nevertheless be better known and more widely grown, incidentally a statement true of any number of other rose species.

Prunus 'Hally Jolivette.' This is another plant introduction by the Arnold Arboretum, and may prove to be one of their most valuable contributions to the small garden. It is a small, almost shrubby flowering cherry, a hybrid between two Japanese species, *Prunus apetala* and the spring cherry *P. subhirtella,* according to its originator, Dr. Karl Sax, although Donald Wyman refers to it as *P. subhirtella* X *P. yedoensis* back-crossed to *P. subhirtella,* in *Trees for American Gardens* (1951). Regardless as to parentage, it

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is a graceful little specimen, attaining perhaps fifteen feet and flowering for a two- or three-week period in early spring. The blossoms are semi-double, rather small, but carried in great numbers on the slender dark branches. They are pale pink in general effect, although actually white with a pink center, and open over a long period of time, not all at once as in some cherries. Other advantages are its ease of propagation and its early flowering from either grafts or cuttings. This plant originated in 1940, and we received our specimen in 1948. This was planted on Azalea Way and flourished until some dieback fungus attacked and killed it last year. However, we have cuttings and will probably replant this beautiful tree soon. It has been available in several local nurseries for the past few years.

Viburnum bodnantense 'Dawn.' Winter flowering plants are always of interest to the gardener and while the list of good winter-blooming shrubs is not long, there are some superior plants included. The Chinese witch-hazel, *Hamamelis mollis,* and its Japanese relative *H. japonica* and varieties; the fragrant Sarcococcas with their small white flowers; *Arbutus Unedo,* the strawberry tree, and *Viburnum fragrans* all are welcome for their winter flower. Among the latest and best additions to this select group is *Viburnum bodnantense* 'Dawn,' a hybrid of the Chinese *V. fragrans* and the Himalayan *V. grandiflorum*. The latter is somewhat tender, but has bright pink flowers in large trusses. *V. fragrans* is a hardy soul, but her flowers are in small tight clusters, rather pale pink. The child has the best characteristics of both parents, a large truss of fragrant pink flowers, a sturdy constitution which weathered the November 1955 freeze, large bold green leaves of a very pleasing rugose texture and brilliant red fall color. The habit is perhaps a bit too stiff, but this we may forgive.

Although the cross had been made earlier, our plant is the end product of a planned cross made about 1935 in Bodnant Gardens, North Wales, where one seedling was obviously better than the rest and received the clonal name 'Dawn.' This clone we imported from Hillier & Sons, Winchester, England, in 1950 and planted in the Winter Garden the next year. Since then the two plants have grown to a height of about 10 feet and have flowered freely from November to about January each year since 1953. It comes easily from cuttings and we have distributed it among a number of local nurseries.

This concludes our short list of "firsts" for this area, and while all of these plants are among the best of their type, there are so many other first introductions made by the Arboretum that this is a pitifully small selection indeed. We do hope it will acquaint you in a small way at least with what your arboretum is doing along this very important line of work.

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Birds of the Arboretum

(Continued from Page 124)

(R) Cooper's Hawk
(R) Marsh Hawk
(R) Sparrow Hawk
(R) California Quail
(R) Ring-necked Pheasant
(R) Coot
(R) Killdeer
(WR) Glaucous-winged Gull
(WR) Ring-billed Gull
(WV) Short-billed Gull
(WR) Bonaparte's Gull
(FM) Common Tern
(WV) Horned Owl
(SR) Pacific Nighthawk
(SR) Rufous Hummingbird
(R) Belted Kingfisher
(R) Red-shafted Flicker
(R) Pileated Woodpecker
(R) Red-breasted Sapsucker
(R) Hairy Woodpecker
(R) Downy Woodpecker
(SR) Little Flycatcher
(SR) Wright's Flycatcher
(SR) Western Flycatcher
(SR) Olive-sided Flycatcher
(SR) Western Wood Peewee
(SR) Violet-green Swallow
(SR) Tree Swallow
(SR) Barn Swallow
(SR) Cliff Swallow
(SR) Purple Martin
(R) Steller's Jay (Crested)
(R) Northwestern Crow
(R) Black-capped Chickadee
(R) Chestnut-backed Chickadee
(R) Coast Bush-tit
(R) Red-breasted Nuthatch
(R) California Creeper
(R) Western Winter Wren
(R) Bewick's Wren
(R) Long-billed Marsh Wren
(SR) Northwestern Robin
(WR) Western Robin
(WR) Varied Thrush
(WR) Hermit Thrush
(SR) Russet-backed Thrush
(R) Golden-crowned Kinglet
(R) Ruby-crowned Kinglet
(WV) Bohemian Waxwing
(R) Cedar Waxwing
(SR) Hutton's Vireo
(SR) Cassin's Vireo
(SR) Red-eyed Vireo
(SR) Western Warbling Vireo
(SR) Orange-crowned Warbler
(SR) Calaveras Warbler
(SR) Yellow Warbler
(SR) Myrtle Warbler, also (WR)
(SR) Audubon's Warbler, also (WR)
(SR) Black-throated Gray Warbler
(SR) Townsend Warbler
(SR) Pacific Yellow-throat (warbler)
(SR) Pileolated Warbler
(R) English Sparrow
(SR) Redwing Blackbird
(R) Brewer's Blackbird
(SM) Cowbird
(SR) Western Tanager
(SR) Western Evening Grosbeak
(R) California Purple Finch
(R) House Finch
(R) Pine Siskin
(R) Common Goldfinch
(R) Rufous-sided Towhee
(SR) Brooks Savannah Sparrow
(R) Oregon Junco
(SR) Chipping Sparrow
(SR) White-crowned Sparrow
(SM) Golden-crowned Sparrow
(SM) Lincoln's Sparrow
(R) Rusty Song Sparrow

Legend

R	Resident
SR	Summer Resident
WR	Winter Resident
WV	Winter Visitor
SM	Spring Migrant
FM	Fall Migrant
ACC	Accidental

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Arboretum Plant Collections II—Magnolias

(Continued from Page 127)

April, compact habit and fragrance. Botanically it is most closely related to *M. Kobus* and is probably only a 'sport' or mutation of it, but horticulturally it is much more valuable. Ht. of a large old plant of unknown origin in RG, 13 ft. RG; Coll.

'Rosea' Japan

D. G. Graham, Seattle, (1939; pl); Arnold Arb., Boston, Mass. (1948; sd.); J. A. Buzard, Hunt's Point, Wash. (1956; pl.)

A form with blush pink tepals, chiefly noticeable in the buds and young flowers. The seedlings from Arnold Arb. began flowering in 1954; only one (of four) showed any pink tinge in the flowers; all had more tepals (19-27) than the usual 12-18. They possess central stems and may become tree-like in time. Ht. (of these plants) 5.5-7.5 ft.; of 1939 plant, 6 ft. LV.

M. tripetala L. (1759) Umbrella tree. E. U.S.A.

Arnold Arb., Mass. (1940; sd.)

A tree large in all respects, but the upright flowers too small in proportion to, and mostly hidden by the coarse leaves. Flowering season, late May to early June; fruit ripening early October. Ht. in RG, 28 ft.; in coll. 17, 19, 23 ft. RG.; Coll.

B. Veitchii Bean (1921) *(M. Campbellii* X *M, denudata)*

Hybrid raised at Exeter, England, by P. C. M. Veitch, 1907; first flowered 1917.

D. G. Graham, Seattle; (1947, 1949; sd.; 1948; pl.); Taylor Nsy., Seattle (1959; pl.)

A very vigorous tree when in a satisfactory site, growing rapidly and flowering when young, much sooner than the parent M. Campbellii. Flowers borne upright on the bare branches in April, 5-6 ins. long, chalice shaped, blush pink. Our 1948 plant thrived in Rhododendron Glen until killed by the early freeze of Nov. 1955, when about 12 ft. tall. One of the two seedlings of 1949 flowered in 1957, the other in 1959; the latter has a superior flower to the former. Ht. of last two, 15 and 20 ft.; of 1959 plant, 7 ft. LV; RG

M. virginiana L. (1753) E. U.S., Mass. to Fla. & Texas.

Sweet Bay

Gardens of the Blue Ridge, Ashford, N. C. (1946; pl.) Mrs. T. C. Frye, Seattle, (1947; pl.); F. Furness, Media, Pa. (1948; sd.)

The oldest plants were set out in a rather dry and shady situation, and although flowering most summers have not flourished; three still survive. That of 1947 failed to establish. Plants from the 1948 seed, placed in two different locations by Azalea Way, both moist and one very wet, in full sun, have grown well. Flowering and fruiting occurred in 1958. The summer blooming season (July-Aug.) and fragrant though small flowers, as well as the evergreen habit, make this a valuable small tree for our region. At present it is too seldom seen.

Ht., of 1946 pl., 10-13 ft.; of 1948 seedlings, 6-8.5 ft. Coll.; Az. Way

X M. grandiflora U. S. Nat. Arb., Washington, D. C. (1948; sd; 1950; pl.)

An interesting hybrid raised by O. M. Freeman at the National Arboretum. In foliage all our second generation plants lean much more towards M. grandiflora; in flower the 1950 plant is about intermediate between the parents, not opening widely, sweetly fragrant. This plant was unhurt by the 1955 early freeze, whereas the other seedlings were considerably damaged but have since made complete recovery. Ht. of 1948 seedlings, 10-11 ft.; of 1950 plant, 12 ft. Coll.

M. Watsonii Hooker fil. (1891) Japan

Hybrid between *M. obovata* and *M. Sieboldii;* origin unknown. C. S. English, Jr. Seattle, (1950; pl.)

Although for eight years in a situation where other magnolias have thrived, this plant has grown very slowly, possibly due, as J. G. Millais suggests (in *Magnolias*, p. 246, 1927)) to being grafted and not grown from a cutting. It has flowered for several years past but not regularly or freely; the creamy white blooms open widely in early June and are heavily scented like *M. obovata.*

Ht. 5.5 ft. LV.

M. Wilsonii (Finet & Gagnep.) Rehder (1913) W. China

C. S. English, Jr., Seattle, (1946; pl.); Mrs. T. C. Frye, Seattle, (1947; pl.); T. Hilling & Co., Chobham, England, (1949; pl.); J. Dunbar, Seattle, (1957; pl.)

Despite the several attempts to establish this distinct and beautiful shrub here little success has been attained, partly due to unsuitable sites and to the freeze of November 1955. The 1947 and 1957 plants at least remain. The former has flowered somewhat irregularly in late May or early June for the last five years or more, and also fruited, but new plantings in different locations are desirable.

Ht. (of 1947 plant), 9 ft. Coll.

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*For previous part of this list see Fall issue, 1959.

**Abbreviations for locations in Arboretum.

Coll. In main collection by Arboretum Drive North, chiefly on west side of road.

LV Loderi Valley, immediately north of last area.

Nsy In nursery.

RG Rhododendron Glen, chiefly on south bank.

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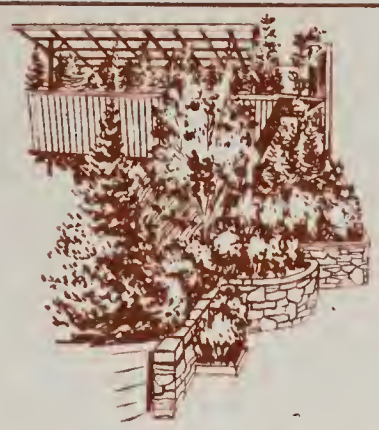

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